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(71) Applicant: EDWARD WECK INCORPORATED
85 Orchard Road
Princeton New Jersey 08543-4000(US)

(72) Inventor: Peters, Ronald Lee
5029 Blackhawk Drive
Danville California(US)
Inventor: Peters, Rudolph
5786 Balmoral Drive
Oakland California(US)
Inventor: Taylor, William
4608 Rockingham Court
Oakland California(US)

(74) Representative: Vossius & Partner
Siebertstrasse 4 P.O. Box 86 07 67
D-8000 München 86(DE)

(54) Method and apparatus for storing dispensing and applying surgical staples.

(57) A method and apparatus for storing, dispensing, and applying surgical staples includes a pistol-like tool (21) having a handle portion (22) with a manually movable trigger lever (28), and a rotatable barrel portion (23, 24, 26) with a staple track for storing staples in parallel, stacked, column fashion, the axis of the column extending generally colinearly with the barrel axis. The staples are urged distally in the track, and the distal track portion is curved out of

axial alignment so that the distal staples are urged into points-first alignment. A form tool is slidably disposed in the barrel portion and adapted to advance and urge the distal-most staple against an anvil tool to crimp the staple. The form tool includes a drag spring which engages the distal-most staple in the staple track as the form tool retracts after a crimping cycle, pulling the distal-most staple from the track into a dispensing position for the next dispensing cycle. A drive block connected to the form tool and the trigger lever (28) is mounted in the apparatus for reciprocal translation along a coaxial drive track. The drive block includes a pawl engag-

ing ratchet teeth in the drive track, so that the block is urged distally by trigger actuation and proximal translation is prevented. The pawl includes a release slide actuated by translation of the block to the distal end of the drive track, coincident with full distal translation of the form tool and crimping of the dispensed staple, the release slide disengaging the pawl and allowing the drive block to return proximally.

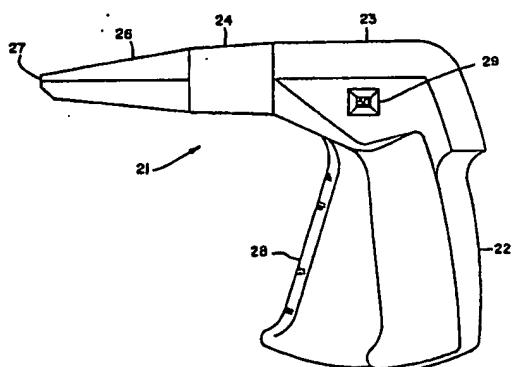


FIG - 1



EP 88 12 1716

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl 4)
X	EP-A-0 040 157 (U.S. SURGICAL CORP.) * Figures; claim 1; abstract *	1,2	A 61 B 17/10
Y		3-7,10- 12,21- 27	
Y	--		
Y	EP-A-0 229 453 (SENMED) * Figures; column 11, line 39 - column 12, line 14 *	3-7	
Y	--		
Y	EP-A-0 039 560 (FOSLIEN) * Figures 4-6; page 7, line 20 - page 8, line 16 *	10-12	
A	--	14-17	
Y	--		
Y	US-A-1 795 085 (DWYER) * Whole document *	21-27	TECHNICAL FIELDS SEARCHED (Int. Cl 4)
A	--		A 61 B
A	US-A-3 837 555 (GREEN) * Column 6, line 8 - column 8, line 35; figures *	13	
A	--		
A	EP-A-0 203 375 (E. WECK & CO.) * Abstract; figures *	10-12, 14-17	
A	--		
A	EP-A-0 085 931 (INTERMEDICAT)		
A	WO-A-87 04 063 (TECHALYTICS)		

The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	06-09-1989	STEENBAKKER	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone	T : theory or principle underlying the invention		
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date		
A : technological background	D : document cited in the application		
O : non-written disclosure	L : document cited for other reasons		
P : intermediate document	& : member of the same patent family, corresponding document		



European Patent
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid.
namely claims:
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

X LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions.

namely:

1. Claims 1,2-9,18-20: A device for applying surgical staples
2. Claims 1,10-12,14-17: Staple pusher member and fingers for moving the staple
3. Claims 1,13: Lip for engaging the points of distal-most staple
4. Claims 1,2,21-27: Counter for displaying the number of staples



All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.



Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid.

namely claims:



None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.

namely claims: